

REMARKS

Applicants thank the Examiner for the courtesy of a telephonic interview on August 9, 2004 during which a draft Amendment After Final that was faxed to the Examiner on August 5, 2004 was discussed. More specifically, Applicants discussed with the Examiner the edited photograph in Exhibit A of the draft Amendment, which appears in Exhibit A hereof, in which a photograph of a Burleigh Inchworm stepper motor has been inserted into a photograph of a tunable laser having an actuator of the type called for in the claims. Applicants emphasized that Applicants' actuator is very small in size in comparison to the Burleigh Inchworm stepper motor, and can be referred to as a micro-dimensioned actuator, as in some claims herein, or a micro-machined actuator, as in other claims herein. Applicants agreed to include a definition of the word "micro-machined," as that word is known to those skilled in the art.

Claims 1-10, 12, 16 and 18-20 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Wu et al. (U.S. Patent No. 6,493,365) in view of McIntyre (U.S. Patent No. 5,319,257). Claims 11, 13-15 and 17 have been similarly rejected over Wu et al. in view of McIntyre, as applied to Claim 1 and 16 above, and further in view of Jerman et al. (U.S. Patent No. 5,998,906). Reconsideration of these claims is respectfully requested.

The disclosures of Wu et al. and McIntyre have been summarized in previous amendments.

The Examiner's reliance on MPEP Section 2144.04(IV) and *Gardner v TEC Systems, Inc., et al.* is improper. The Examiner states that in *Gardner* the Federal Court held, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. However, the facts of *Gardner* are quite different than the instant situation in that the structure of the patentee's device in *Gardner* was substantially identical to the structure of the cited reference except for certain dimensional limitations included in the patentee's claim. In the instant situation, Applicants have not merely scaled down structure found in one reference. Specifically, Applicants have not merely scaled down the actuator 370 disclosed in Wu et al., nor has the Examiner suggested that the actuator of Wu et al. could be scaled down to a microactuator. Instead, the Examiner relies on McIntyre as disclosing a microactuator. The inability of the actuator 370 of Wu et al. to be scaled down to a microactuator invalidates the Examiner's reliance on MPEP Section 2144.04(IV) and *Gardner*.

Amended Claim 1 is patentable by calling for a tunable single mode laser microassembly operable over a range of wavelengths comprising a source for providing a light along an optical

path with any wavelength from the range of wavelengths, a diffractive element positioned in the optical path and spaced from the source by a first distance to redirect the light, a reflective element positioned in the optical path and spaced from the diffractive element by a second distance to receive the redirected light from the diffractive element and to redirect the light back towards the diffractive element, the light being redirected by the diffractive element back towards the source, and a micro-dimensioned actuator coupled to one of the diffractive element and the reflective element for causing angular movement of such element to permit selection of a single wavelength from the range of wavelengths by altering the optical path of the light.

As used in the claims, the word "micro-dimensioned" means a part that is composed of a majority of individual elements with minimum sizes of micron dimensions and of aggregate size which can be as large as millimeters in dimension.

Wu et al. does not disclose a tunable single mode laser microassembly, let alone such a microassembly having a micro-dimensioned actuator. Nor does McIntyre disclose a micro-dimensioned actuator, or suggest that such a component should be combined into a tunable single mode laser microassembly of the type called for in Claim 1.

Regardless of the Examiner's assertion that McIntyre discloses a microactuator, McIntyre does not disclose a micro-dimensioned actuator as called for in amended Claim 1. As noted in previous Amendments by Applicants, McIntyre compares its actuator to a Burleigh Inchworm stepper motor, which from the dimensions previously noted by Applicants is certainly not micro-dimensioned. Applicants have further noted from FIG. 3 of McIntyre that the actuator thereof appears to utilized conventional screws. The sizing of such screws is not consistent with a micro-dimensioned actuator. In this regard, attached as Exhibit A is a Burleigh Inchworm stepper motor that, as stated above, has been inserted into a photograph with a tunable laser microassembly of the type called for in Claim 1. The micro-dimensioned actuator of such microassembly is the black portion of the microassembly. As can be seen from Exhibit A, the Burleigh Inchworm stepper motor illustrated therein, and hence the microactuator disclosed in McIntyre, are not micro-dimensioned actuators as called for in Claim 1.

It would not be obvious to combine the disclosures of Jerman et al. with the disclosures of Wu et al. or McIntyre to arrive at the combination of Claim 1, as suggested by the Examiner with respect to Claims 11, 13-15 and 17. On the contrary, there is no suggestion or disclosure in Jerman et al. that the electrostatic microactuator disclosed therein could be suitable for, let alone utilized in, a tunable laser microassembly.

In attempting to combine the disparate disclosures of Wu et al., McIntyre and Jerman et al. in an obviousness rejection of any of the claims herein, the Examiner appears to be using impermissible "hindsight" reasoning. The United States Supreme Court has frequently warned

against the use of "hindsight" in determining obviousness. See, for example, *Diamond Rubber Co. v. Consolidated Rubber Tire Co.*, 220 U.S. 428 (1911), where the court stated:

"Knowledge after the event is always easy, and problems once solved present no difficulties, indeed, may be represented as never having had any, and expert witnesses may be brought forward to show that the new thing which seemed to have eluded the search of the world was always ready at hand and easy to be seen by a merely skillful attention. But the law has other tests of the invention than subtle conjectures of what might have been seen and yet was not. It regards a change as evidence of novelty, the acceptance and utility of change as further evidence, even as demonstration Nor does it detract from its merit that it is the result of experiment and not the instant and perfect product of inventive power. A patentee may be baldly empirical, seeing nothing beyond his experiments and the result; yet if he has added a new and valuable article to the world's utilities, he is entitled to the rank and protection of an inventor It is certainly not necessary that he understand or be able to state the scientific principles underlying his invention, and it is immaterial whether he can stand a successful examination as to the speculative ideas involved."

Examples of the numerous lower court decisions criticizing the improper use of hindsight include: *Crown Operations International, Ltd. v. Solutia Inc.*, 289 F.3d 1367, 1376, 62 USPQ2d 1917 (Fed. Cir. 2002) ("Determination of obviousness cannot be based on the hindsight combination of components selectively culled from the prior art to fit the parameters of the patented invention." *ATD Corp. v. Lydall, Inc.*, 159 F.3d 534, 546, 48 USPQ2d 1321, 1329 (Fed. Cir. 1998)."); *McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1351, 60 USPQ2d 1001 (Fed. Cir. 2001) ("The genius of invention is often a combination of known elements which in hindsight seems preordained. To prevent hindsight invalidation of patent claims, the law requires some 'teaching, suggestion or reason' to combine cited references."); and *Yamanouchi Pharmaceutical Co., Ltd. v. Danbury Pharmacal, Inc.*, 231 F.3d 1339, 1345, 56 USPQ2d 1641, 1645 (Fed. Cir. 2000) ("as the district court aptly concluded, this case 'has all the earmarks of somebody looking at this from hindsight.'").

In light of the foregoing, the rejection of Claim 1 should be withdrawn.

Claims 2-12 depend from Claim 1 and are patentable for the same reasons as Claim 1 and by reason of the additional limitations called for therein.

Claim 13 has been amended to include the limitation of former Claim 15 and now call for a tunable laser of the type called for therein having, among other things, a micro-machined actuator for selecting the wavelength from the bandwidth of wavelengths by altering the optical path of the light between the diffractive element and the reflective element. As used herein, the word "micro-machined," as known to those skilled in the art, means a part fabricated through a sequence of processing steps which result in a monolithic or integrated device. Claim 13 has been further amended to provide that the actuator has a substrate as a base and a movable micro-

machined structure overlying the substrate. Claim 13 is patentable for the reasons discussed above with respect to Claim 1.

Claim 14 depends from Claim 13 and is patentable for the same reasons as Claim 13 and by reason of the additional limitations called for therein.

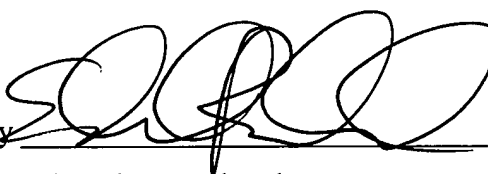
Amended Claim 16 is patentable for the same reasons as Claims 1 and 13 by calling for a method for using a tunable single mode laser microassembly to provide light with any wavelength selected from a range of wavelengths, comprising the steps of providing the light along an optical path, providing a diffractive element in the optical path to diffract the light, providing a reflective element in the optical path to reflect the light and selecting a single wavelength of light by altering the optical path of the light by means of a micro-machined actuator coupled to the reflective element for causing angular movement of the reflective element.

Claims 17-20 depend from Claim 16 and are patentable for the same reasons as Claim 16 and by reason of the additional limitations called for therein.

In view of the foregoing, it is respectfully submitted that the claims of record are allowable and that the application should be passed to issue. Should the Examiner believe that the application is not in a condition for allowance and that a telephone interview would help further prosecution of this case, the Examiner is requested to contact the undersigned attorney at the phone number below.

Respectfully submitted,

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EXHIBIT A

